

REMARKS

Claims 1-12 are pending in the application. By this Amendment, independent claim 1 is amended, and the Abstract of the specification is also amended to overcome the Examiner's objection thereto. Accordingly, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

I. Objection

The Examiner objects to the abstract of the disclosure. As shown in the foregoing amendments, Applicant has amended the abstract to overcome the Examiner's objection. Therefore, Applicant respectfully requests withdrawal of the objection.

II. Allowable subject matter

The Examiner indicates that claims 10 and 12 contain allowable subject matter. More specifically, claim 12 is objected to but would be allowed if rewritten in independent form, and claim 10 would be allowable if amended to overcome alleged 35 U.S.C. § 112, 2nd paragraph rejections.

As discussed in the telephone interview of June 10, 2002 between the Examiner and Applicant's representatives, the rejections under 35 U.S.C. § 112, 2nd paragraph were overcome by the January 7, 2002 Amendment, and claim 10 should be allowable. Further, Applicant respectfully submits that the remaining pending claims are believed to be allowable for at least the reasons provided below, and therefore declines to rewrite the claims in independent form at this time.

III. The claims are novel

Claims 1, 2, 5, 8 and 11 stand rejected due to alleged anticipation under 35 U.S.C. § 102(b) over Castelli et al. (U.S. Patent No. 4,342,880, hereafter “Castelli”). Applicant respectfully submits that Castelli fails to disclose (or even suggest) the claimed combination of features, for at least the reasons discussed below. Therefore, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

The present invention relates to a power cable having improved characteristics at least due to the presence of at least one covering layer into which a nanocomposite component that can be used in industrial fabrication processes is introduced or polymerized *in situ*, as disclosed at page 1, line 30-page 2, line 4 of WO-A-93/04 117.

Castelli discloses a medium voltage electric cable having one or more conductors covered by an inner semiconductive screen 12, an insulation layer 13 and an outer semiconductive screen. Applicant respectfully submits that the foregoing structure of Castelli is a conventional structure for a medium voltage cable.

Claim 1 recites a power cable comprising a conductive material core and at least one covering layer, characterized in that said at least one covering layer is constituted essentially of a material comprising an inorganic compound having an exfoliated layered structure **made from nanocomposite material** and an organic compound inserted between layers of said inorganic compound.

Applicant respectfully submits that Castelli fails to disclose an exfoliated layered structure, as recited in claim 1. As previously noted, Castelli uses a combination of vulcanization

and extrusion to form the semiconductor screen and insulation portions of the cable. Castelli does not disclose an inorganic compound having an exfoliated layered structure, as recited in claim 1.

Further, Applicant respectfully submits that Castelli fails to disclose (or even suggest) an exfoliated layer made from nanocomposite material, as recited in independent claim 1.

The Examiner asserts that because the sheets of Castelli are easily removable (i.e., strippable) from the core (see Castelli, column 1, lines 9-15), those sheets can be an exfoliated structure. The Examiner also asserts that XLPE is an organic compound that can form an insulation layer 13, placed between the layers 12, 14 (i.e., semi-conductive screens).

Further, Applicant respectfully submits that Castelli fails to disclose that the inorganic compound is rendered incompatible with the organic compound via treatment with an agent, as recited in dependent claim 11. Applicant notes that contrary to the Examiner's assertions, the outer semiconductor screen 14 of Castelli includes a blend of nitrile rubber and ethylene-propylene rubber (which would be understood by one of ordinary skill in the art to be an organic compound), and thus, the semiconductor screen 14 is **not** an inorganic compound that is rendered incompatible with an organic compound. In fact, Castelli appears to have the same compound in layers 13 and 14, which the Examiner has applied to claim 11. Thus, Applicant respectfully submits that the rejection of claim 11 is based on an improper characterization of Castelli.

Claims 2, 5 and 8 depend from claim 1. Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as discussed with respect to independent claim 1. Additionally, Applicant respectfully submits that Castelli fails to disclose that the at least one

covering layer comprises an insulative material layer constituted essentially of a material comprising an inorganic compound **having an exfoliated layered structure** and an organic compound inserted between the layers of said inorganic compound, as recited in claim 8. As noted above, it appears that the Examiner has mischaracterized Castelli as having an exfoliated structure, simply because the sheets of Castelli can be easily removable (strippable). Thus, Applicant respectfully requests withdrawal of the §102 rejection.

IV. The claims would not have been obvious

Claims 3, 4, 6, 7 and 9 stand rejected due to alleged obviousness under 35 U.S.C. § 103(a) over Castelli. Applicant respectfully submits that Castelli fails to disclose or suggest all of the claimed combination of features, as required for a prima facie obviousness rejection. Thus, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

Claims 3, 4, 6, 7 and 9 depend from independent claim 1. Applicant respectfully submits that those dependent claims are allowable for at least the same reasons as discussed above with respect to independent claim 1. Therefore, Applicant respectfully requests withdrawal of the obviousness rejection, and allowance of the claims.

In addition to the foregoing reasons, Applicant respectfully submits that Castelli fails to teach or suggest that the at least one covering layer comprises an external covering layer constituted essentially of a material comprising an inorganic compound **having an exfoliated layered structure** and an organic compound inserted between the layers of said inorganic compound, as recited in claim 9.

V. Response to Examiner's traversals

In response to the Applicant's arguments, the Examiner has responded as shown at pages 6-10 of the present Office Action, in item 10, sub-items A-E. Applicant responds to the Examiner's arguments as follows.

A. Castelli fails to teach an exfoliated layer made from nanocomposite material, as recited in claim 1

The Examiner correctly notes that claim 1 did not disclose that above-noted nanocomposite feature at the time of the Office Action. However, as shown in the foregoing amendments, Applicant has amended independent claim 1 to include this feature. Further, Applicant respectfully submits that Castelli does not disclose or even suggest this claimed feature. Therefore, Applicant respectfully submits that the claims are allowable for at least this reason.

B. Castelli fails to disclose an inorganic compound having an exfoliated structure, as recited in claim 1

In the response to Applicant's arguments, the Examiner asserts that "exfoliated is a process" used in the cable art to separate layers. However, Applicant respectfully submits that it is clear that the term "exfoliated," when read in light of the specification and independent claim 1, describes a property of the layered structure recited in claim 1. Therefore, Applicant respectfully submits that "exfoliated" is an adjective and not a verb, and does not refer to the method of forming the device, but instead refers to a property or attribute of the device itself. Therefore, Applicant respectfully submits that the recited feature "exfoliated" is germane to the patentability of the claimed power cable.

Further, the Examiner states that if the sheets can be easily strippable as disclosed in Castelli, then they can be considered exfoliated. Applicant respectfully submits that one of ordinary skill in the art would understand that the term “strippable” does not read on the term “exfoliated.” For example, but not by way of limitation, Applicant submits that “exfoliated” may be defined as (but is not limited to) “casting off in flakes, scales or splinters” according to Webster’s Dictionary, whereas “strippable” is defined as “to remove an exterior coating, according to Webster’s Dictionary. Applicant respectfully submits that “strippable” does not provide the necessary specificity to read on “exfoliated” because there is no disclose of a layered structure that has the property of being exfoliated (i.e., having a layer that was cast off in flakes, scales or splinters). Therefore, Applicant respectfully submit that claim 1 is allowable for at least those reasons.

C. Castelli does not disclose the outer semi-conductive screen having an inorganic compound

The Examiner asserts that the semi-conductive screen is constituted by a mixture of nitrile rubber and ethylene propylene rubber, said mixture comprising carbon black, and that such a mixture is an inorganic compound. However, Applicant submits that assertion is incorrect, as the foregoing is not an inorganic compound. Applicant respectfully submits that while the foregoing mixture includes carbon black, which is inorganic, it also includes the above-mentioned organic components (e.g., ethylene propylene rubber) in a mixture.

Accordingly, Applicant respectfully submits that Castelli does not disclose layers of an inorganic compound, and an organic compound inserted between the inorganic layers. Because

Castelli does not disclose the foregoing claimed structure, Applicant respectfully submits that claim 1 is allowable over Castelli. Thus, Applicant respectfully requests withdrawal of the anticipation rejection of claim 1.

D. Castelli does not disclose the inorganic compound being incompatible with the organic compound via treatment with an agent, as recited in claim 11

The Examiner correctly notes that the above-cited argument does not refer to the features recited in claim 11. Further, Applicant respectfully requests discussion of this issue in a personal interview with Applicant's representatives.

E. Castelli fails to disclose an outer covering layer comprising a material having an exfoliated layered structure, and an organic compound inserted between the layers of the inorganic compound

The Examiner also appears to assert that a multi-core cable may be characterized as a multi-layer cable. However, Applicant respectfully submits that this characterization is also not correct, and that one of ordinary skill in the art would not substitute a cable having multiple cores with a cable having multiple layers, as the cores are substantially different from the cables. Applicant contrasts the multiple core 11 illustrated in the Figure of Castelli with the claimed multi-layer cable. Applicant respectfully submits that the multi-core structure 11 of Castelli does not disclose (or even) suggest multiple layers - rather, each of the cores is part of a bundle, and there is no layering in the core. Further, as admitted by the Examiner, Castelli does not disclose the recited multiple layers. Applicant respectfully submits that the present case does not appear

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to involve the type of mere duplication performed in the St. Regis Paper case cited by the Examiner.


VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice amended) A power cable comprising:

a conductive material core; and

at least one covering layer, characterized in that said at least one covering layer is constituted essentially of a material comprising an inorganic compound having an exfoliated layered structure made from a nanocomposite material and an organic compound inserted between layers of said inorganic compound.

IN THE ABSTRACT

Please amend the abstract as follows:

The invention relates to a power cable comprising a conductive material core and at least one covering layer, characterized in that said covering layer is constituted essentially of a material [comprising]that includes an inorganic compound of sheet structure and an organic compound inserted between the layers of [said]the inorganic compound.